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10/767.207

01/30/2004

Yuichi Teramura

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11/09/2006

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EXAMINER

PAK, SUNG H

ART UNIT

PAPER NUMBER

2874

DATE MAILED: 11/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/767,207

Applicant(s)

TERAMURA ET AL.

Examiner

Sung H. Pak

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/01/2006 has been entered.

Response to Amendment

All independent claims have been now amended to recite, *inter alia*, "... said cladding is exposed only in a vicinity of the second end..." or "...in the vicinity of the first and second ends..."; and "...the entire optical fiber other than... said vicinity is coated..."

Applicants argue that cited references fail to teach or suggest the features as now claimed and recited in the present application.

The examiner respectfully submits that despite the claim amendment, the pending claims of the present application are not in condition for allowance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-2, 9-10, 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blonder et al (US 5,448,672) in view of Vacha et al (US 4,874,222).

Blonder reference discloses an optical device with nearly all limitations set forth in the above noted claims, except it does not explicitly teach the 'entire' portions of optical fiber being coated with at least one of metal or inorganic material, as claimed in the instant application.

Nevertheless, Blonder reference does disclose: a package having a structure which allows sealing of an inside of the package (Fig. 1, column 2 lines 48-51); an optical fiber having a cladding (abstract), first and second ends, and a predetermined length, and being fixed to said package in such a manner that the first end of the optical fiber appears inside the package (Fig. 1, '16'; "second end" is not explicitly drawn in the figure, but the optical fiber necessarily must have a second end- see also the discussion presented in the Office Action mailed 3/06/06); wherein said cladding is exposed in a vicinity of the first and second ends (Fig. 1-2; column 2 lines 28-33; cladding is exposed on the second end, because the optical fiber used in Blonder

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reference is a bare fiber- see also the discussion presented in the Office Action mailed 3/06/06) and the optical fiber other than a portion of the cladding in said vicinities is coated with a metal material (Fig. 2, column 2 lines 64-68);

wherein the packaged is hermetically sealed by solder (column 2 lines 59-60);

further comprising light emitting elements and/or light receiving elements, wherein the light emitting elements and/or the light receiving elements are optically connected to an end of the optical fiber (Fig. 1; column 2 lines 48-51).

Although the fiber ends should have exposed cladding for optical coupling, the use of metallic or inorganic coating on the "entire" portions of optical fiber other than ends, is well known and common in the art. Vacha et al reference explicitly teaches the use of metallic hermetic coating disposed on the optical fiber (abstract; Col. 2, ll. 46-54). Such coating is well known to be considered advantageous and desirable in the art because it allows for durable and high performance optical transmission fiber (see Col. 2- Background Art). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the device of Blonder to have metal or inorganic coating on the 'entire' portion of the optical fiber.

Claims 3-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blonder et al (US 5,448,672) in view of Vacha et al (US 4,874,222) as applied to claims above, and in further view of Murata et al (US 6,123,464).

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Blonder reference, in view of Vacha et al, renders claimed limitations obvious as discussed above. However, it does not explicitly teach the use of Si-free solder and the interior of the package being filled with inert gas containing very small concentration of oxygen as claimed in the instant application.

On the other hand, Murata explicitly teaches the use of a hermetic seal solder that does not contain Si (column 4 line 62), and the package being filled with inert gas containing oxygen at a concentration of 1PPM or greater (column 6 lines 8-14). Such features are considered advantageous and desirable because it allows effective hermetic sealing of the optoelectronic package, and more efficiently protects fragile optical component from harsh environmental factors.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the device of Blonder to have Si-free solder and inert gas disposed in the package with very small concentration of oxygen as taught by Murata.

Claims 11-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blonder et al (US 5,448,672) in view of Vacha et al (US 4,874,222) as applied to claims above, and in further view of Okazaki et al (US 2002/0090172 A1).

Blonder reference, in view of Vacha et al, renders claimed limitations obvious as discussed above. Also, Blonder discloses the use of a condensing lens to coupling light between the optical fiber and the optoelectronic device (column 2 lines 55-57 of Blonder). Nevertheless, it does not explicitly teach the use of plurality of single cavity semiconductor lasers with

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oscillation wavelength of 350 to 500nm, plurality of collimating lenses, as claimed in the instant application.

However, the use of plurality of single cavity semiconductor lasers with wavelength of 400nm and plurality of collimating lenses are well known in the art as taught by Okazaki (Fig. 1, paragraphs 0014-0016, 0081). Such features are considered advantageous and desirable in the art because plurality of lasers allow for high-bandwidth, multiple signal optical communications which provide high speed and robust optical communication, and the plurality of collimating lenses allow for efficient optical coupling between optical fibers and plurality of laser sources.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the Blonder device to have plurality of single cavity semiconductor lasers with oscillation wavelength of 350 to 500nm and plurality of collimating lenses, as taught by Okazaki.

Claims 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blonder et al (US 5,448,672) in view of Vacha et al (US 4,874,222) as applied to claims above.

Blonder reference, in view of Vacha et al, renders claimed limitations obvious as discussed above. However, it does not explicitly teach the use of a resin coated second optical fiber coupled with the first optical fiber.

On the other hand, the use of a resin coated optical fiber for coupling with optical fibers used in optoelectronic packages is well known and common in the art. The use of a second (i.e. additional) optical fiber for coupling light signals out of/ into optoelectronic package is considered advantageous and desirable in the art since it allows for routing and transmission of

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optical signals via specialized optical fiber (e.g. polarization maintaining fiber, long-haul transmission fiber, etc) for robust optical communication applications.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the device of Blonder to have a resin coated second optical fiber coupled with the first optical fiber of the optoelectronic package.

Claims 25-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blonder et al (US 5,448,672) in view of Vacha et al (US 4,874,222) as applied to claims above.

Blonder reference, in view of Vacha et al, renders claimed limitations obvious as discussed above. However, it does not explicitly teach the length of the metallized portion being 100mm, the portion of the fiber located outside the package being 65mm to 75mm in length, the second end with cladding exposed is 40mm in length, and the optical fiber has overall length of 140mm or less as claimed in the instant application.

Nevertheless, the court has determined that “[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) Since the general condition of the claim in the instant application is fully taught by Blonder et al. reference, the workable ranges of various portions of the optical fiber are not inventive, unless these ranges demonstrate criticality, in that there is a clear evidence these ranges provide distinct, unforeseen advantages over the prior art. MPEP 2144.05.

The length of the metallized portion being 100mm, the portion of the fiber located outside the package being 65mm to 75mm in length, the second end with cladding exposed being

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40mm in length, and the optical fiber having overall length of 140mm or less would be considered advantageous and desirable to one of ordinary skill in the art at the time the invention was made because it would provide optical fiber for interfacing with optoelectronic package that is: 1) securely sealed at the connecting portion, and 2) the portion of the fiber protruding from the package that is long enough for forming connector junction.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the device of Blonder to arrive at the optimal fiber lengths stated above through routine experimentation.

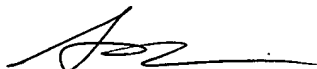
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sung H. Pak whose telephone number is (571) 272-2353. The examiner can normally be reached on Monday- Friday, 9AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571)272-2344. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Sung H. Pak
Primary Patent Examiner
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